

Patent White Space Analysis

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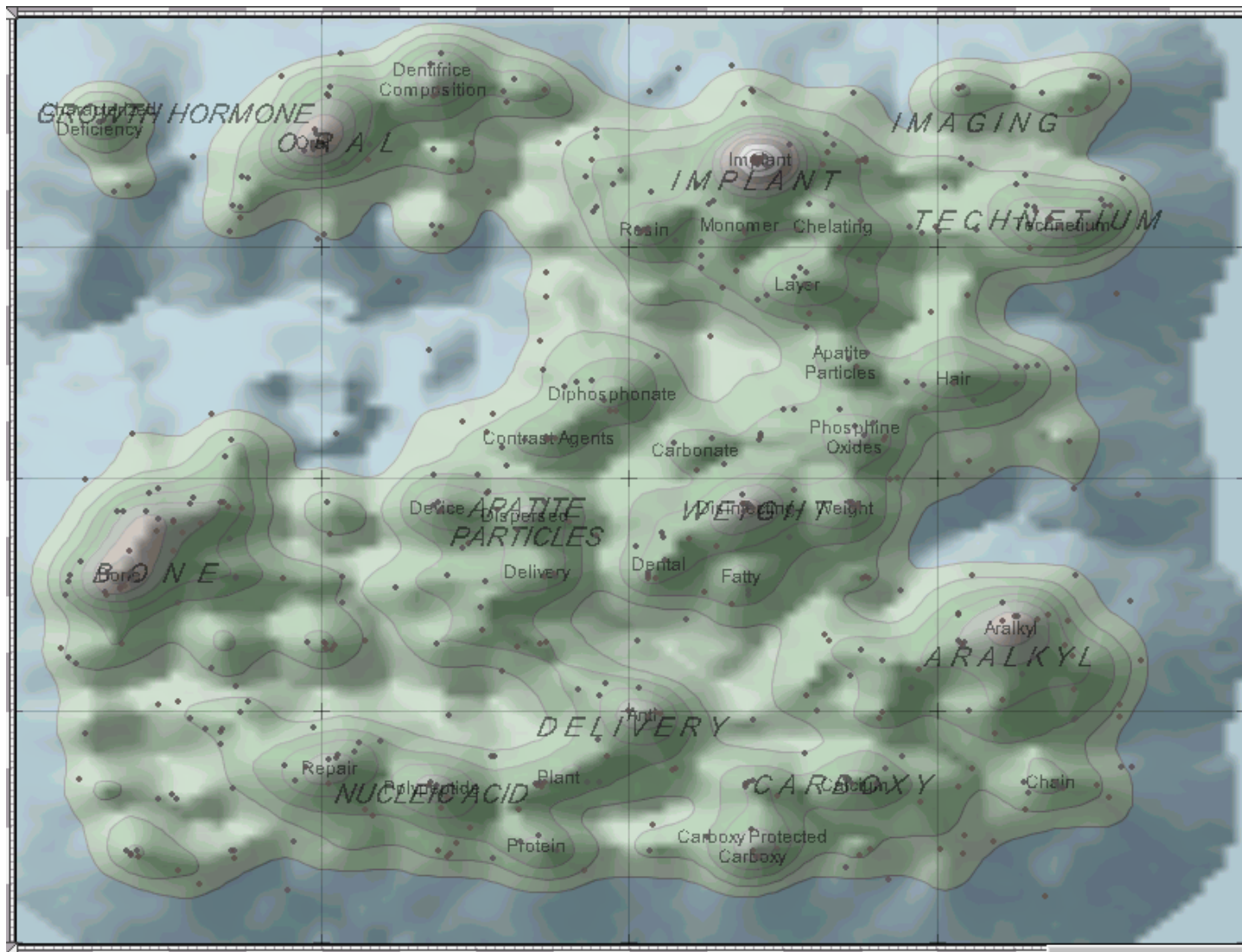
Business Information Services

Procter & Gamble

Health Care Research Center

Mason, Ohio

“White Space” is the area with little or no patenting activity



Standard Methods for Finding White Space

A)

- 1. Search for and study all that has been done.**
- 2. Use imagination to extrapolate to what has not been done (new ideas).**

Or

B)

- 1. Get an idea.**
- 2. Look in the literature to see if it's been done.**

Proposed New Method for Find White Space:

- **1. Search for all that has been done.**
- **2. Compare against a defined “universe”
to find what has not been done.**

Some Examples of Possible “Universes” of Patent Classification

- **1. Derwent classification schemes (manual codes or fragments)**
- **2. International Patent Classification**
- **3. National Classifications (such as the US Classification)**
- **4. IFI classifications**

Derwent CPI Manual Codes

“Assignment of CPI Manual Codes

Codes are applied to the inventive/significant features of the invention using the Documentation Abstract as the source document. The codes are assigned by teams of Derwent analysts who have been specially trained in the application of these codes. The analysts have specialist knowledge in each of the areas of technology with which they are concerned.”

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<http://www.derwent.com/cpi-codes/>

Derwent CPI Manual Codes

Chemical patents covered by Derwent are divided into 12 sections:

A Polymers, Plastics Plasdoc

B Pharmaceuticals Farmdoc

C Agricultural Chemicals Agdoc

D Food, Disinfectants, Detergents

E General Chemicals Chemdoc

F Textiles, Paper

G Printing, Coating, Photographic

H Petroleum

J Chemical Engineering

K Nucleonics, Explosives, Protection

L Refractories, Glass, Ceramics

M Metallurgy

B:

FARMDOC

B01 Steroids

B02 Antibiotics (*Vaccines pre-1994, see B14-S11 from 1994*)

B03 Vitamins

B04 Natural Products (or Genetically Engineered), Polymers

B05 Miscellaneous

B06 Heterocyclic Fused Ring

B07 Heterocyclics, Mononuclear

B08 Aromatics, Polycarbocyclic

B09 Alicyclics, Polycarbocyclic

B10 Aromatics and

Cycloaliphatics (Mono and Bicyclic only), Aliphatics

B11 Processes, Apparatus

B12 Diagnostics and Formulation Types (*Therapeutic, Pesticidal, Herbicidal pre 1994*)

B14 Pharmaceutical Activities

Derwent Manual Codes for Pharmaceutical Activities

Pre-1994

CPI Code	Code Description
B12-A	ANTIMICROBIAL TYPE
B12-B	ANTIPARASITIC TYPE
B12-C	CNS-ACTIVE TYPE (I)
B12-D	CNS-ACTIVE TYPE (II)
B12-E	AUTONOMIC N.S. ACTIVE TYPE
B12-F	CARDIOACTIVE TYPE
B12-G	METABOLISM ACTIVE TYPE
B12-H	BLOOD ACTIVE TYPE
B12-J	GASTROINTESTINAL ACTIVE TYPE
B12-K	DIAGNOSTICS, RESPIRATORY ACTIVE TYPE
B12-L	COSMETIC PREPARATION TYPE
B12-M	FORMULATIONS TYPE (exception: still used after 1994)
B12-N	PESTICIDES, FERTILIZERS
B12-P	PLANT GROWTH REGULANT TYPE
B14-A	ANTIMICROBIALS
B14-B	PESTICIDES AND OTHER ANTIPARASITICS
B14-C	ANAESTHETICS AND DRUGS RELIEVING FEVER, INFLAMMATION AND PAIN
B14-D	HORMONAL, ANTIHORMONAL, ENZYME INHIBITORS
B14-E	DRUGS ACTING ON THE GASTROINTESTINAL SYSTEM
B14-F	DRUGS ACTING ON THE BLOOD AND CARDIOVASCULAR SYSTEM
B14-G	DRUGS ACTING ON THE IMMUNE SYSTEM
B14-H	ANTICANCER DRUGS
B14-J	DRUGS ACTING ON THE MUSCULAR AND NERVOUS SYSTEMS
B14-K	DRUGS ACTING ON THE RESPIRATORY SYSTEM
B14-L	AGONISTS/MIMETICS AND ANTAGONISTS/INHIBITORS NOT COVERED ELSEWHERE
B14-M	ANTIDOTES
B14-N	ORGANS
B14-P	DRUGS ACTING ON THE REPRODUCTIVE SYSTEM
B14-R	COSMETICS
B14-S	MISCELLANEOUS ACTIVITY TERMS

After 1994

Derwent Chemical Fragment (BCE) Codes

“All possible chemical permutations covered by the patent, whether "real" or "prophetic", are separated into appropriate chemical fragments, which are then translated into chemical codes. “

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<http://www.derwent.com/chemistry/indexing.html>

Derwent Chemical Fragment (BCE) Codes: Organization

Elements Present Part A: Metals Present

Part B: Less Common Non-metals Present

Part C: Common Non-metals Present

Ring Systems Part D: Fused Ring Heterocycles

Part E: More Fused Ring Heterocycles

Part F: Mononuclear Heterocycles

Part G: Carbocycles

Functional Groups Part H: Common Functional Groups without $>C=O$ or $>C=S$

Part J: Common Functional Groups with $>C=O$ or $>C=S$

Part K: Bonds Between Heteroatoms in Organic Compounds

Part L: Other Less Common Groups

Miscellaneous Part M: Miscellaneous Descriptors (Ring to ring linkages, carbon chains, type of patent, etc.)

Non-Structural Codes Part N: Chemical Reactions, Bonds Broken and Formed

Part P: Activities, Properties, Uses - Sections B and C

Part Q: Activities, Properties, Uses - Section E

Part R: Formulations, Galenicals

Part V: Natural Products, Polymers

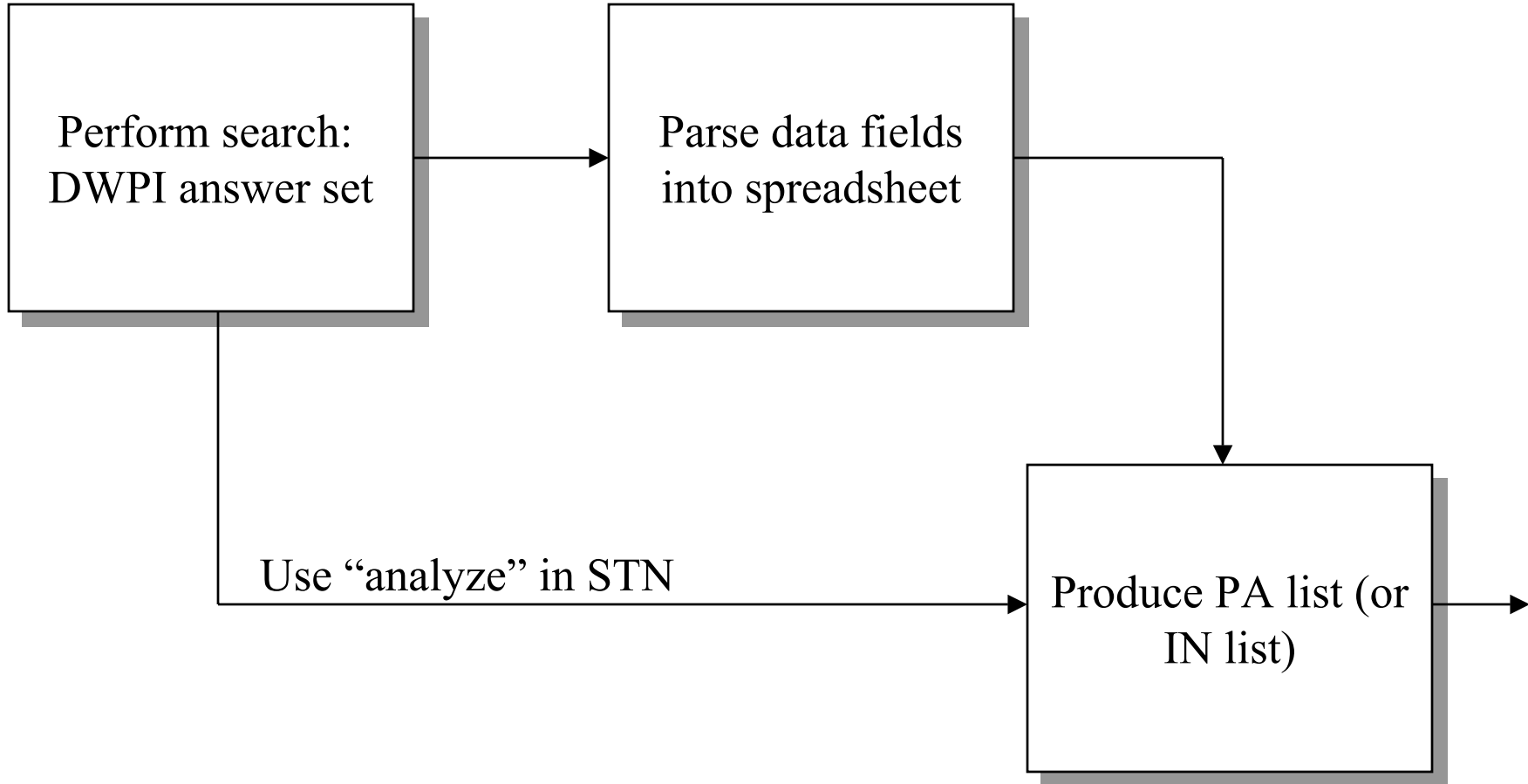
Part W: Dyes

Steroids Part S: Steroid Descriptors I

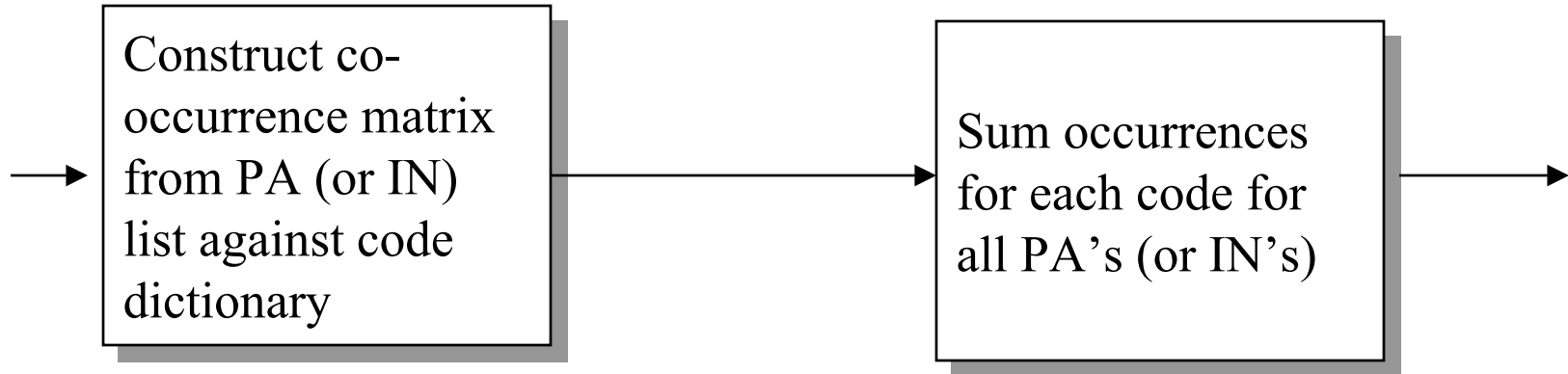
Part T: Steroid Descriptors II

Part U: Steroid Descriptors III

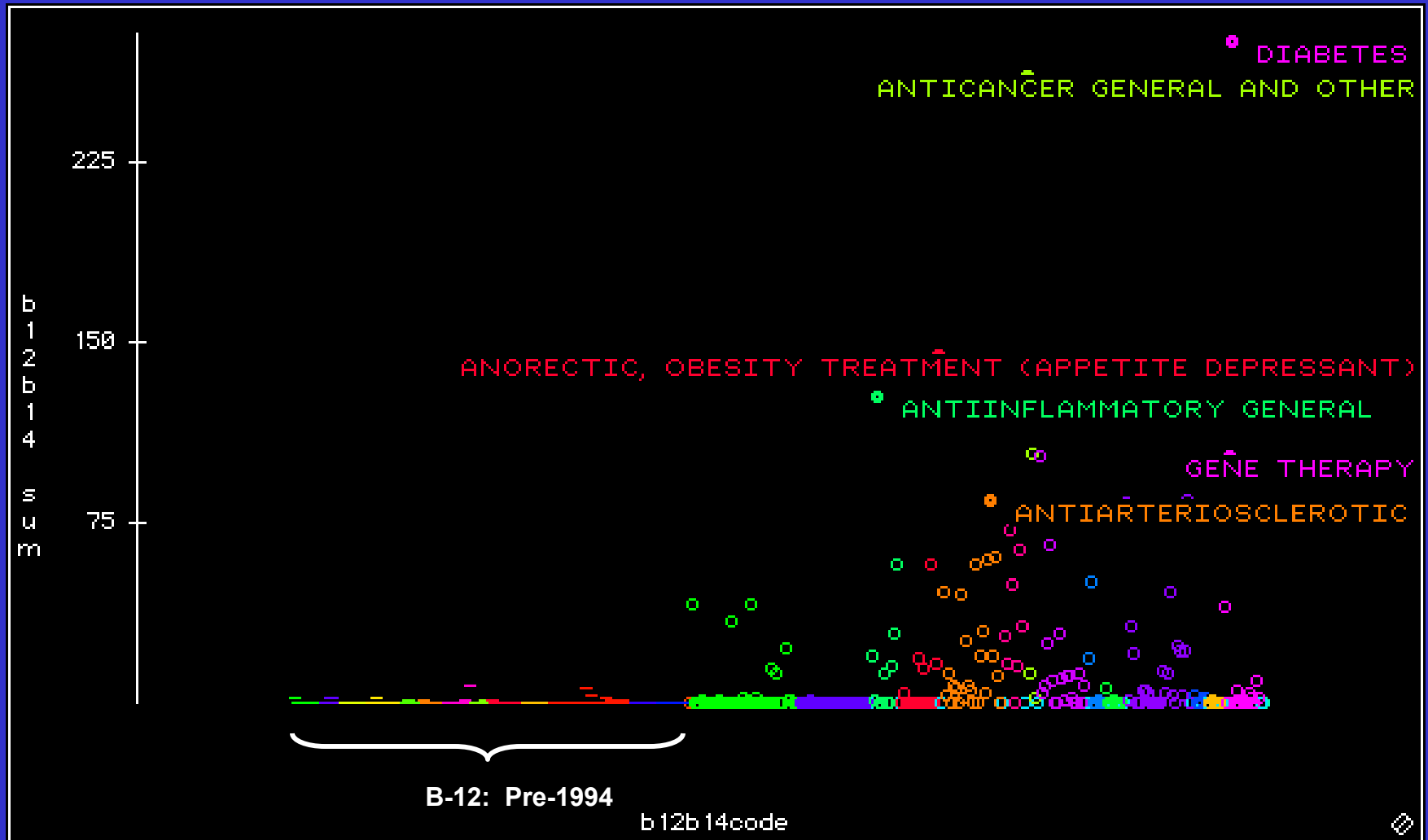
Process



Process (cont'd)

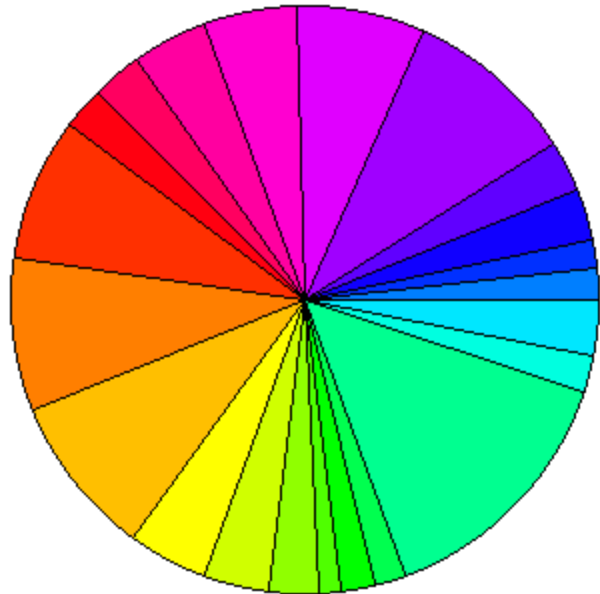


“Map” of Therapeutic Uses

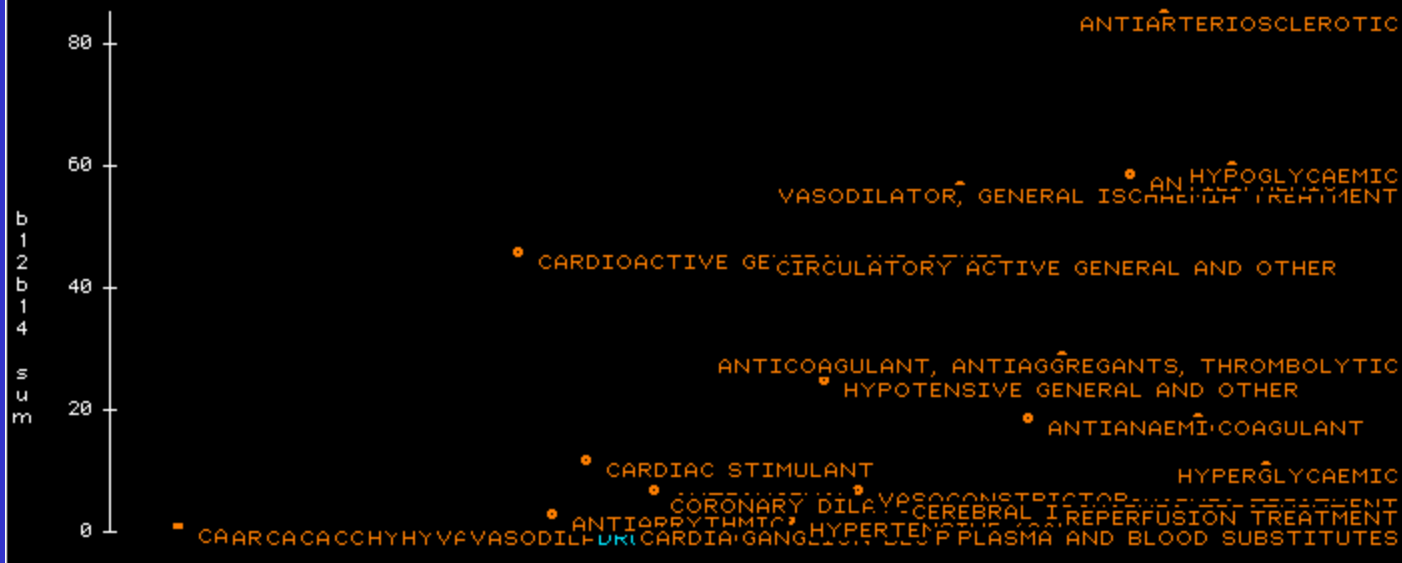


Therapeutic Categories

General code breakdown



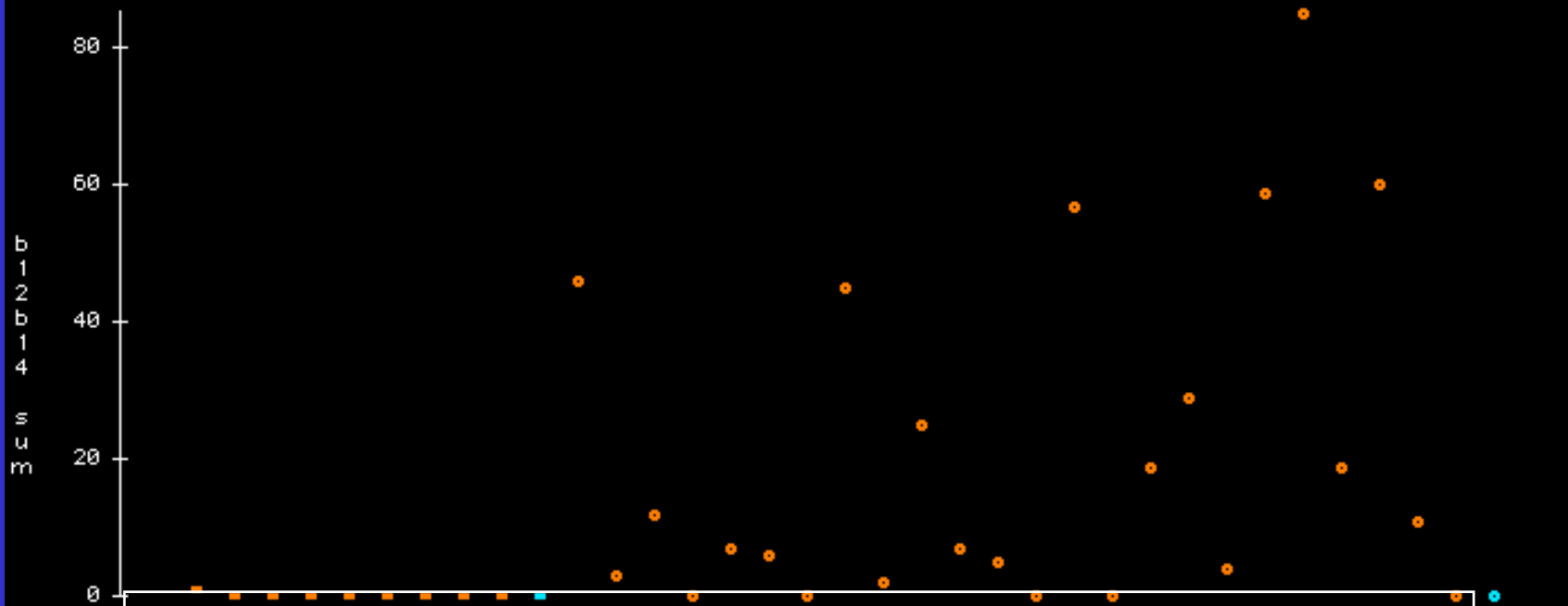
- Anaesthetics, fever, pain inflammation
- antidotes
- antimicrobials
- autonomic N.S. active
- blood active
- cancer
- CNS-active type (I)
- CNS-active type (II)
- cosmetics
- CV and blood
- formulations
- GI
- immune system
- metabolism active
- Misc activity
- muscular, nervous systems
- organs
- pesticides, antiparasitics
- pesticides, fertilizers
- plant growth regulant
- reproductive system
- respiratory



Find White Space

B12B14 descriptions

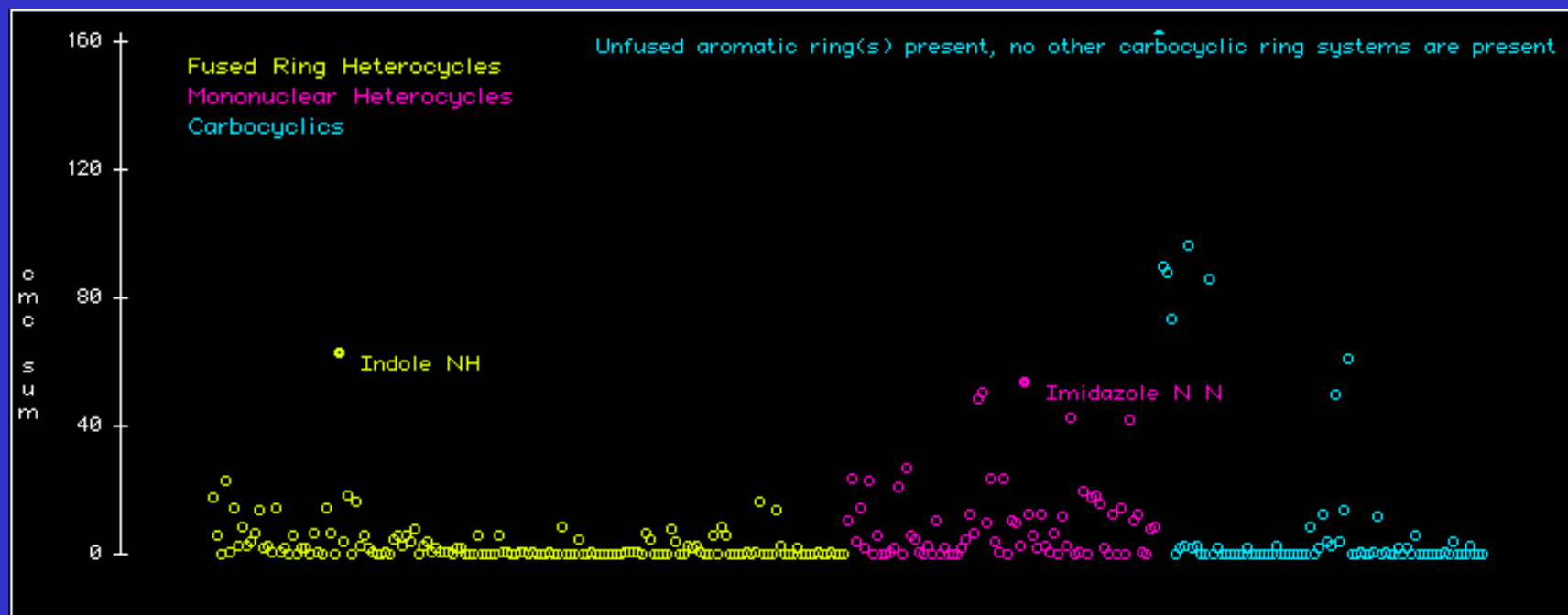
ARRHYTHMIA TREATMENT
CARDIAC STIMULANT
CARDIOVASCULAR. INOTROPIC
CORONARY DILATOR
HYPERTENSIVE
HYPOTENSIVE GENERAL
VASOCONSTRICTOR
VASODILATOR
CARDIAC DEPRESSANT
GANGLION BLOCKER
PULMONARY ISCHAEMIA TREATMENT
LYMPHATIC DISEASE TREATMENT
PLASMA AND BLOOD SUBSTITUTES



Analysis of Structure White Space

- **The same process can be used on either the manual codes or fragment codes to find structure white space**
- **For purposes of white space analysis, the BCE fragment code system is more appropriate since it is more thorough**

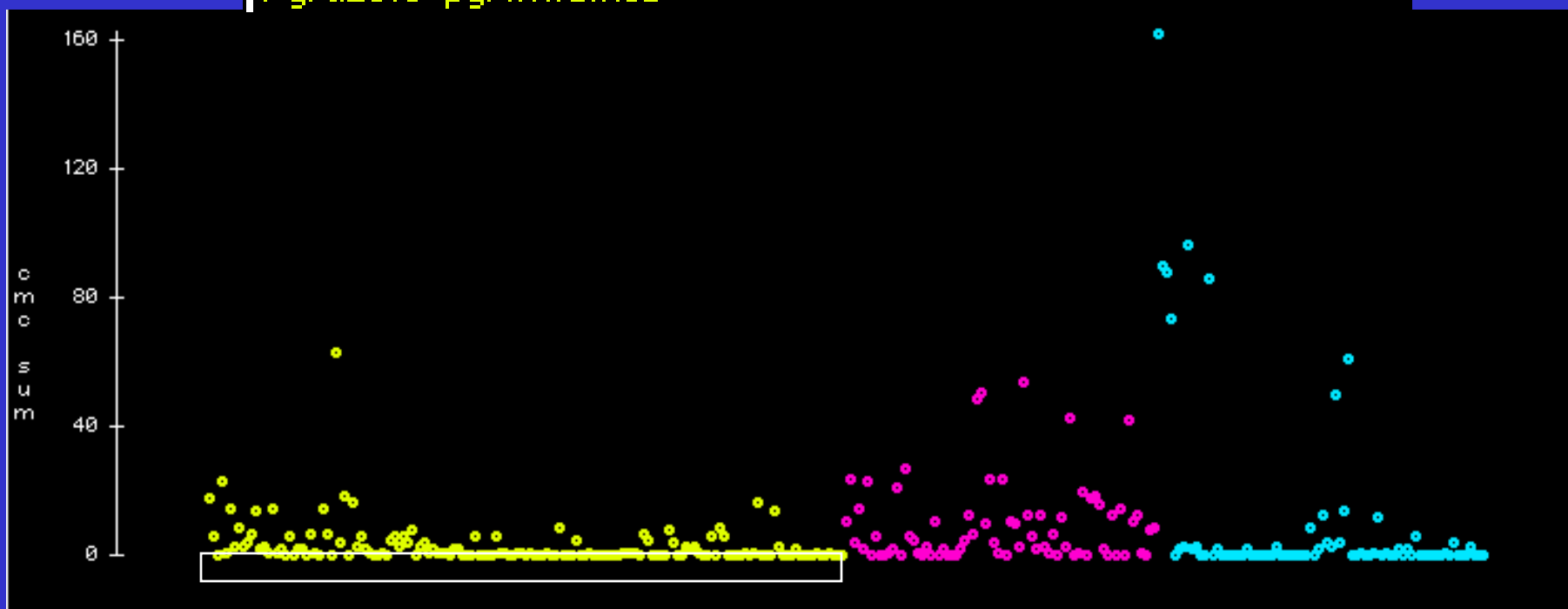
Fragment Code White Space Plot



Find White Space

Fragment Description

Pyrazolo-pyridines
Pyrrolo-pyrimidines
Pyrido-pyrimidines
Poly
Pyrazolo-pyrazine N N N N
Pyrazolo-pyridazines
Pyrazolo-pyrimidines



Notes About Usage

- **A thorough search is necessary to define the starting data set**
- **The white space analysis is only an idea generation tool**
- **Once new ideas are generated, thorough searches are again needed.**

Conclusions

- Derwent's Manual and Fragment Code systems may be used to define a “universe” for white space analysis
- The Manual Code system is better for finding use white space, while the Fragment Code system is better for structure white space.